

What is claimed is:

- 1) In a process for making food grade polyester containing transparent waste polyester, comprising: providing a stream containing oligomers, feeding transparent polyester waste to an extruder; melting said transparent polyester waste in said extruder; extruding said molten polyester waste into said stream containing oligomers creating an prepolymer, and polymerizing said prepolymer thereby producing polyester containing waste transparent polyester suitable for food grade applications.
- 2) The process of claim 1, wherein said process is a continuous process comprising the steps of primary esterifying, secondary esterifying, and one or more polymerizing steps.
- 3) The process of claim 2, wherein said stream containing oligomers is the process stream entering or during operation of said secondary esterifying.
- 4) The process of claim 1, wherein said polyester waste is from post consumer recycle products, or production waste, or a combination thereof.
- 5) The process of claim 1, wherein said step of extruding said polyester waste includes a venting step for venting solvents or some volatiles from said molten polyester.
- 6) The process of claim 1, wherein said molten polyester comprises up to 50 wt. % of said polyester.
- 7) The process of claim 1, wherein said process is a continuous process comprising the steps of primary esterifying, secondary esterifying, low polymerizing and high polymerizing.
- 8) The process of claim 7, wherein said extruding step is just before said secondary esterifying.

- 9) The process of claim 1, including the additional step of filtering said molten polyester before said extruding step.
- 10) The process of claim 1, wherein said polyester waste is not dried prior to extruding.
- 11) The process of claim 1, wherein said feeding is conducted under a nitrogen atmosphere.
- 12) The process of claim 5, wherein said venting includes a vacuum step.
- 13) The process of claim 1, wherein said step of extruding does not include a venting step.
- 14) The process of claim 1, wherein said step of extruding includes the step of adding glycol.
- 15) A product prepared by the process of claim 1, wherein said polymer has a b^* value of less than 6.
- 16) A product prepared by the process of claim 1, wherein said polymer contains from about 35 to about 75 ppm Co.
- 17) A product prepared by the process of claim 1, wherein the product is further solid-state polymerized.
- 18) A preform that is stretch blow molded from the product of claim 17.
- 19) A bottle that is stretch blow molded from the product of claim 17.